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EXAMINER

PIZIALI, JEFFREY J

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/714,095	<b>Applicant(s)</b> SITALASAI ET AL.	
	<b>Examiner</b> Jeff Piziali	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 3/17/08, 1/12/07, and 9/28/06.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-9, 11-21, 25-28, 30-33 and 35-37 is/are pending in the application.
- 4a) Of the above claim(s) 22-24 and 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-21, 25-28, 30-33 and 35-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Species I, Sub-Species A (i.e., ***Claims 1-9, 11-21, 25-28, 30-33, and 35-37***) in the reply filed on 12 January 2007 is acknowledged.

The Applicant states, "*withdraw with traverse claims 29 and 22-24*" (see Page 7 of the Election filed 12 January 2007). This is not found persuasive because no arguments supporting this traversal have been provided.

The requirement is still deemed proper and is therefore made FINAL.

2. ***Claims 22-24 and 29*** are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 12 January 2007.

3. This application contains ***Claims 22-24 and 29*** drawn to an invention nonelected with traverse in the reply filed on 12 January 2007. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the

Art Unit: 2629

currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Drawings***

5. The drawings were received on 28 September 2006. These drawings are acceptable.
6. The drawings have not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the figures.

### ***Specification***

7. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim contains subject matter which was not described in the

Art Unit: 2629

specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 9 recites the subject matter: "***said input device is wireless***" (in lines 1-2). However, as illustrated in Figures 7 and 8, the instant invention makes use of multiple wires.

As such, the claim contains "***wireless***" subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 1-9, 11-21, 25-28, 30-33, and 35-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*a system for a device **having** a printed circuit board inside **it, comprising...***" (see lines 1-2).

It would be unclear to one having ordinary skill in the art what the subject of "**having**" is intended to be. The system? Or the device?

It would be unclear to one having ordinary skill in the art what "*it*" is intended to refer to.  
The system? Or the device? Or the board?

It would be unclear to one having ordinary skill in the art what the subject of  
"*comprising*" is intended to be. The system? Or the device? Or the circuit board?

13. The term "*wake-up*" in claim 2 (in line 1) is a relative term which renders the claim indefinite. The term "*wake-up*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. There exists no antecedent basis for any active, idle or sleep states. As such, it would be unclear to one having ordinary skill in the art what "*a wake-up system*" is intended to wake-up from. Could any physical or electrical change in the system constitute a "*wake-up*"? Isn't the system "*awoken*" simply by powering it?

14. Claim 9 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter:  
"*said input device is wireless*" (in lines 1-2).

It would be unclear to one having ordinary skill in the art what portion of the claimed invention lacks wires, or functions wirelessly.

Art Unit: 2629

15. Claims 11-13, and 27 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: *"said/the stationary contact"*.

Base claim 1 recites, *"at least one stationary contact"*. Therefore, it would not be unclear to one having ordinary skill in the art whether claims 11-13 are limited to having a single stationary contact. Or rather whether the *"said/the stationary contact"* limitations refer to one or more distinct and different contact(s) other than the earlier claimed *"at least one stationary contact"*.

16. Claim 12 recites the limitation *"the center"* (in line 2). There is insufficient antecedent basis for this limitation in the claim. *"The center"* is what claimed element? The system? The contact?

17. Claim 13 recites the limitation *"toward its center"* (in line 2). There is insufficient antecedent basis for this limitation in the claim. *"The center"* is what claimed element? The system? The contact?

18. Claims 14-18 recites the limitation *"the sensitivity"* (in line 1). There is insufficient antecedent basis for this limitation in the claims.

Art Unit: 2629

19. Claim 14 recites the limitation "***manufacture***" (in line 2). There is insufficient antecedent basis for this limitation in the claim.

20. Claim 15 recites the limitation "***the size of the hole***" (in line 2). There is insufficient antecedent basis for this limitation in the claim.

21. Claim 16 recites the limitation "***the size***" (in line 2). There is insufficient antecedent basis for this limitation in the claim.

22. Claim 17 recites the limitation "***the weight***" (in line 2). There is insufficient antecedent basis for this limitation in the claim.

23. Claim 18 recites the limitation "***the conductivity***" (in line 2). There is insufficient antecedent basis for this limitation in the claim.

24. Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "***plural stationary contacts***" (in line 2).

It would be unclear to one having ordinary skill in the art whether the "***plural stationary contacts***" are further refining the earlier claimed limitation "***at least one stationary contact***" in



Art Unit: 2629

claim 1, line 9); or rather whether the "**plural stationary contacts**" are distinct and different from (and adding to) the earlier claimed "**at least one stationary contact**".

25. The term "**arranged as pieces of a pie**" in claim 20 is a relative term which renders the claim indefinite. The term "**arranged as pieces of a pie**" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Different artisans will have different ways of arranging their pie pieces. Some will cut their pies into rectangles. Others triangles.

26. Claim 21 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "**at least 2 stationary contacts**" (in lines 1-2).

It would be unclear to one having ordinary skill in the art whether the "**at least 2 stationary contacts**" are further refining the earlier claimed limitation "**at least one stationary contact**" in claim 1, line 9); or rather whether the "**at least 2 stationary contacts**" are distinct and different from (and adding to) the earlier claimed "**at least one stationary contact**".

27. Claim 31 recites the limitation "**state**" (in line 2). The lack of a grammatical article (such as "**a**" or "**a plurality of**" or "**the**" or "**said**") preceding the limitation renders it unclear whether

Art Unit: 2629

the claim is establishing a new element; or instead referring back to some preestablished limitation.

28. Claim 32 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "***a motion sensor switch***" (in line 3).

It would be unclear to one having ordinary skill in the art whether the "***motion sensor switch***" is identical to the "***electrical switch***" (in claim 31); or rather whether these are distinct and different switches.

An omitted structural cooperative relationship results from the claimed subject matter: "***that***" (in line 3).

It would be unclear to one having ordinary skill in the art what "***that***" is intended to refer to.

29. Claim 32 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "***a motion signal pulse***" (in line 2).

It would be unclear to one having ordinary skill in the art whether the "*motion signal pulse*" is identical to the "*motion signal output*" (in claim 1); or rather whether these are distinct and different signals.

30. Claim 35 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*a motion signal output*" (in line 4) and "*a motion signal*" (in line 5).

It would be unclear to one having ordinary skill in the art whether the "*motion signal output*" is identical to the "*motion signal*"; or rather whether these are distinct and different elements.

31. Claim 36 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

An omitted structural cooperative relationship results from the claimed subject matter: "*a method of waking-up an input device **having** a printed circuit board inside it, comprising...*" (see lines 1-2).

It would be unclear to one having ordinary skill in the art what the subject of "*having*" is intended to be. The system? Or the device?

It would be unclear to one having ordinary skill in the art what "*it*" is intended to refer to.  
The system? Or the device? Or the board?

It would be unclear to one having ordinary skill in the art what the subject of  
"*comprising*" is intended to be. The system? Or the device? Or the circuit board?

An omitted structural cooperative relationship results from the claimed subject matter:  
"**stationary contact,**" (see line 9).

It would be unclear to one having ordinary skill in the art whether or not the claim ends at  
the period in line 9.

32. The term "*wake-up*" in claim 36 (in line 13) is a relative term which renders the claim indefinite. The term "*wake-up*" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. There exists no antecedent basis for any active, idle or sleep states. As such, it would be unclear to one having ordinary skill in the art what "*a wake-up device*" is intended to wake-up from. Could any physical or electrical change in the system constitute a "*wake-up*"? Isn't the system "*awoken*" simply by powering it?

33. The remaining claims are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon rejected base claims.

***Claim Rejections - 35 USC § 103***

34. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

35. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

36. Claims 1-9, 11-21, 25, 28, 31, 32, and 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Weiss (US 6,492,975 B1)* in view of *Chou (US 6,559,396 B1)*.

Regarding claim 1, *Weiss* discloses a system [e.g., Fig. 2; 20] for a device [e.g., Fig. 4; 1] comprising:

a motion sensor [e.g., a tilt switch -- see particularly Column 4, Line 5] operatively coupled to said device, said motion sensor having a motion signal output [e.g., tilt switch output, either electrically switched-on or switched-off, depending upon tilted mouse position]; and

a detection circuit [e.g., Fig. 6; 11] (see the entire document, including Column 5, Lines 43-58) connected to the motion signal output and having a trigger signal output [e.g., a mouse disable/enable signal] (see the entire document, including Column 4, Lines 1-26).

*Weiss* only mentions in passing using a tilt switch, and does not expressly disclose structural/mounting details of the tilt switch.

However, *Chou* expressly discloses a system for a device [e.g., Fig. 7] having a printed circuit board [e.g., Fig. 7; 60] inside it, comprising:

a motion sensor [e.g., Fig. 7; 30 & 40 working in electrical/gravitational conjunction together] operatively coupled to said printed circuit board of said device (see the entire document, including Column 2, Line 66 - Column 3, Line 22), said motion sensor having a motion signal output [e.g., either electrically switched-on or switched-off, depending upon conductive ball 30 position],

said motion sensor comprising:

a ball contact [e.g., Fig. 7; 30]; and

at least one stationary contact [e.g., Fig. 7; 40, 41, 42] disposed on said printed circuit board of said device,

wherein said ball contact is in electrical contact with said at least one stationary contact (see the entire document, including Column 2, Lines 1-33).

*Chou* explains, "*The first and second terminal portions 41 are press-fitted in the mounting recesses 24, respectively. Each of the first and second terminal portions 41 includes a*

Art Unit: 2629

*proximate end integrally connected to a respective one of the first and second contact bodies 42, and a distal end extending from the proximate end in a plane to which the centerline (C) is normal and adapted to be superimposed on a copper foil 62 mounted on the upper mount surface 61 of the support 60, thereby making an electric contact between the respective one of the first and second electric contact terminals 40 and the support 60" (see the entire document, including Column 4, Lines 1-11).*

*Weiss* and *Chou* are analogous art, because they are from the shared field of tilt switch sensing circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to substitute *Weiss'* generic tilt switch [e.g., *Weiss*: Column 4, Line 5] with *Chou's* tilt switch [e.g., *Chou*: Fig. 7; 100], so as to provide a tilt switch which can maintain an electrical connection even when jerked by a slight tilting force, and thereby prevent undesired electrical connection interruptions [e.g., *Chou*: Column 1, Lines 32-42].

It would have been obvious to one of ordinary skill in the art at the time of invention because all the claimed elements were known in the prior art and one skilled in the art could have combined a tilt sensor with a mouse type input device as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

It would have been obvious to one of ordinary skill in the art at the time of invention, because the substitution of one known tilt sensor for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

It would have been obvious to one of ordinary skill in the art at the time of invention, because the technique for improving (by prevent undesired electrical connection interruptions) this particular class of tilt sensor input device was part of the ordinary skill in the art, in view of the teaching of the technique for improvement in other situations.

It would have been obvious to one of ordinary skill in the art at the time of invention, because this particular known tilt sensor technique was recognized as part of the ordinary capabilities of one skilled in the art.

It would have been obvious to one of ordinary skill in the art at the time of invention, because a person of ordinary skill has good reason to pursue the known options within his or her technical grasp (i.e., adding a tilt sensor to a mouse type input device). If this leads to the anticipated success, it is likely the product is not of innovation but of ordinary skill and common sense.

It would have been obvious to one of ordinary skill in the art at the time of invention, because design incentives or market forces provided a reason to make a tilt sensor adaptation, and the invention resulted from application of the prior knowledge in a predictable manner.

See KSR International Co. v. Teleflex Inc., et al., Docket No. 04-1350 (U.S. 30 April 2007).



Regarding claim 2, **Weiss** discloses said system is a wake-up system (see the entire document, including Column 3, Line 62 - Column 4, Line 26 -- for either enabling/waking-up or disabling mouse operations).

Regarding claim 3, **Weiss** discloses said trigger signal output is a wake-up signal output (see the entire document, including Column 3, Line 62 - Column 4, Line 26 -- for either enabling/waking-up or disabling mouse operations).

Regarding claim 4, **Weiss** discloses said device is an input device (see the entire document, including Column 4, Lines 12-43).

Regarding claim 5, **Chou** discloses said motion sensor is a mechanical motion sensor (see the entire document, including Column 1, Lines 6-11).

Regarding claim 6, **Chou** discloses said motion sensor is a tilt sensor (see the entire document, including Column 1, Lines 6-11).

Regarding claim 7, **Weiss** discloses said input device is a mouse (see the entire document, including Column 4, Lines 12-43).

Regarding claim 8, **Weiss** discloses said mouse is an optical mouse (see the entire document, including Column 4, Lines 12-26).

Regarding claim 9, **Weiss** discloses said input device is wireless (see the entire document, including Column 4, Line 32).

Regarding claim 11, **Chou** discloses said stationary contact is printed on said printed circuit board (see the entire document, including Column 3, Lines 4-22).

Regarding claim 12, **Chou** discloses said stationary contact has a hole [e.g., Fig. 7; 43] in the center (see the entire document, including Column 3, Lines 39-60).

Regarding claim 13, **Chou** discloses the stationary contact has an inclined surface [e.g., Fig. 7; 421] toward its center (see the entire document, including Column 3, Lines 61-67).

Regarding claim 14, **Chou** discloses the sensitivity of said tilt sensor is adjustable during manufacture (see the entire document, including Column 2, Lines 17-33 -- wherein **Chou's** tilt switch is adjusted during manufacture to be less sensitive than a conventional tilt switch).

Regarding claim 15, **Chou** discloses the sensitivity of said tilt sensor is adjusted by the size of the hole (see the entire document, including Column 2, Lines 1-33 -- wherein hole size inherently impacts tilt switch sensitivity).

Regarding claim 16, **Chou** discloses the sensitivity of said tilt sensor is adjustable by the size of the ball contact (see the entire document, including Column 2, Lines 1-33 -- wherein ball size inherently impacts tilt switch sensitivity).

Regarding claim 17, **Chou** discloses the sensitivity of said tilt sensor is adjustable by the weight of the ball contact (see the entire document, including Column 2, Lines 1-33 -- wherein ball weight inherently impacts tilt switch sensitivity).

Regarding claim 18, **Chou** discloses the sensitivity of said tilt sensor is adjustable by the conductivity of the ball contact (see the entire document, including Column 2, Lines 1-33 -- wherein ball conductivity inherently impacts tilt switch sensitivity).

Regarding claim 19, **Chou** discloses said tilt sensor comprises plural [e.g., first and second] stationary contacts [e.g., Fig. 7; 40] (see the entire document, including Column 3, Lines 1-3).

Regarding claim 20, **Chou** discloses the plural stationary contacts are arranged as pieces of a pie (see the entire document, including Fig. 6).

Regarding claim 21, **Chou** discloses there are 2 [e.g., first and second] stationary contacts [e.g., Fig. 7; 40] (see the entire document, including Column 3, Lines 1-3).

Regarding claim 25, **Chou** discloses said ball contact is a conductive ball (see the entire document, including Column 1, Lines 6-11).

Regarding claim 28, **Chou** discloses said motion sensor further includes a housing and said housing [e.g., Fig. 7; 20] is sealed (see the entire document, including Column 4, Lines 12-15).

Regarding claim 31, **Weiss** discloses said motion sensor comprise an electrical switch and said detection circuit detects a change in state of whether said switch is opened or closed (see the entire document, including Column 4, Lines 1-26).

Regarding claim 32, **Weiss** discloses said detection circuit comprises: a motion detector [e.g., Fig. 6; 11] that determines if there is a change in the opened or closed state of a motion sensor switch [e.g., tilt switch]; and a signal processing circuit having a latch circuit [e.g., wherein switch 11 inherently latches whether or not the mouse is disabled/titled] that creates a signal of a particular level for a period of time to generate a wake-up signal [e.g., a mouse disable/enable signal] (see the entire document, including Column 5, Lines 43-58).

Regarding claim 35, this claim is rejected by the reasoning applied in rejecting claims 1-4.

Regarding claim 36, this claim is rejected by the reasoning applied in rejecting claims 1-4.

Regarding claim 37, *Weiss* discloses said input device further comprises a microprocessor [e.g., the computer] and said microprocessor wakes-up the input device in response to said wake-up signal from said detection circuit (see the entire document, including Column 6, Lines 3-6).

37. Claims 26, 27, and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Weiss* (US 6,492,975 B1) and *Chou* (US 6,559,396 B1) as applied respectively to claims 6 and 32 above, and further in view of *Davis* (US 4,196,429 A).

Regarding claim 26, neither *Chou* nor *Weiss* expressly discloses a tilt switch having a gold-plated ball contact.

However, *Davis* does disclose a tilt switch having a gold-plated ball contact [e.g., Fig. 2; 46] (see the entire document, including Column 4, Lines 9-14).

*Chou*, *Weiss*, and *Davis* are all analogous art, because they are from the shared field of tilt/motion sensing circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to substitute *Weiss*' generic tilt switch [e.g., *Weiss*: Column 4, Line 5] with *Chou's* tilt switch [e.g., *Chou*: Fig. 7; 100], while also replacing *Chou's* copper/steel ball [e.g., *Chou*: Column 3, Lines 23-25] with *Davis*' gold plated contacts [e.g., *Davis*: Column 3, Lines 64 and

Art Unit: 2629

Column 4, Line 11] so as to provide a tilt switch which can maintain an electrical connection even when jerked by a slight tilting force, and thereby prevent undesired electrical connection interruptions [e.g., *Chou*: Column 1, Lines 32-42], while also improving electrical conductivity and minimizing oxidation [e.g., *Davis*: Column 4, Line 12].

Regarding claim 27, neither *Chou* nor *Weiss* expressly discloses a tilt switch having a gold-plated stationary contact.

However, *Davis* does disclose a tilt switch having gold-plated stationary contacts [e.g., Fig. 2; 32 & 36] (see the entire document, including Column 3, Lines 63-68).

Regarding claim 33, neither *Chou* nor *Weiss* expressly discloses a motion detector comprising two invertors for amplifying and converting a motion signal pulse from a motion sensor.

However, *Davis* does disclose a motion detector comprising two inverters [e.g., Fig. 10; 98 & 108] for amplifying and converting a motion signal pulse [e.g., Fig. 10; at 7] from a motion sensor [e.g., Fig. 10; 70] (see the entire document, including Column 5, Lines 18-64).

Therefore, it would have been obvious to use *Davis*' hex inverter buffer amplifier circuit as *Weiss*' motion detector, so as to provide an inexpensive and small-sized motion detector [e.g., *Davis*: Column 5, Lines 45-47].

38. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Weiss (US 6,492,975 B1)* and *Chou (US 6,559,396 B1)* as applied to claim 28 above, and further in view of *Kato et al (US 5,837,951 A)*.

Regarding claim 30, neither *Chou* nor *Weiss* expressly discloses a tilt switch housing being sealed with an adhesive.

However, *Kato* does disclose a tilt switch housing being sealed with an adhesive (see the entire document, including Fig. 35; Column 30, Lines 37-40).

*Chou*, *Weiss*, and *Kato* are all analogous art, because they are from the shared field of tilt/motion sensing circuitry.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to substitute *Weiss'* generic tilt switch [e.g., *Weiss*: Column 4, Line 5] with *Chou's* tilt switch [e.g., *Chou*: Fig. 7; 100], while also replacing *Chou's* seals [e.g., *Chou*: Column 4, Lines 12-15] with *Kato's* seals [e.g., *Kato*: Column 30, Lines 37-40 and Column 33, Lines 47-52] so as to provide a tilt switch which can maintain an electrical connection even when jerked by a slight tilting force, and thereby prevent undesired electrical connection interruptions [e.g., *Chou*: Column 1, Lines 32-42], while also securely sealing the resulting tilt switch without need for welding work [e.g., *Kato*: Column 30, Lines 24-26].

### ***Response to Arguments***

39. Applicant's arguments filed 28 September 2006 have been fully considered but they are not persuasive.

The Applicant contends, "**Chou** was cited for showing the recited 'motion sensor'; the tilt switch 100 illustrated in Figs. 4, 5, and 7. **Chou's** tilt switch 100 includes a conductive ball 30, and first and second contact bodies 42 which are disposed on a lower surface shown in Fig. 5 as element 424 (also shown in Fig. 7, but not numbered). Col. 3, lines 39-42. The cross-sectional view of Fig. 7 shows that the tilt switch 100 is mounted on a support 60. Fig. 7 clearly shows that the lower surface (on which the contact bodies 42 are disposed) of **Chou's** tilt switch is separate from the support 60 which is presumably the support surface of a larger device of which the tilt switch is a component. **Chou's** tilt switch is wholly separate from the support 60, and in particular none of the tilt switch components include the support 60. **Chou**, therefore, does not show or suggest recited device including a motion sensor where the 'motion sensor is operatively coupled to the printed circuit board of the device' and the motion sensor comprises 'a ball contact and at least one stationary contact disposed on said printed circuit board of said device'" (see the entire document, including Page 21 of the Amendment filed 28 September 2006). However, the examiner respectfully disagrees.

**Chou** expressly discloses a motion sensor [e.g., Fig. 7; 30 & 40 working in electrical / gravitational conjunction together] operatively coupled to said printed circuit board of said device (see the entire document, including Column 2, Line 66 - Column 3, Line 22), said motion sensor having a motion signal output [e.g., either electrically switched-on or switched-off, depending upon conductive ball 30 position],

said motion sensor comprising:



a ball contact [e.g., Fig. 7; 30]; and  
at least one stationary contact [e.g., Fig. 7; 40, 41, 42] disposed on said printed circuit board of said device,  
wherein said ball contact is in electrical contact with said at least one stationary contact (see the entire document, including Column 2, Lines 1-33).

Chou explains, "*The first and second terminal portions 41 are press-fitted in the mounting recesses 24, respectively. Each of the first and second terminal portions 41 includes a proximate end integrally connected to a respective one of the first and second contact bodies 42, and a distal end extending from the proximate end in a plane to which the centerline (C) is normal and adapted to be superimposed on a copper foil 62 mounted on the upper mount surface 61 of the support 60, thereby making an electric contact between the respective one of the first and second electric contact terminals 40 and the support 60*" (see the entire document, including Column 4, Lines 1-11).

Therefore, Chou does indeed teach a motion sensor where the "*motion sensor is operatively coupled to the printed circuit board of the device*" and the motion sensor comprises "*a ball contact; and at least one stationary contact disposed on said printed circuit board of said device*", as instantly claimed.

Additionally, Chou illustrates the first and second contact bodies [e.g., Fig. 7; 42] resting directly on top of another, smaller, upwardly tapered (and unlabeled) substrate, sandwiched

between the two contact terminals [e.g., Fig. 7; 40]; wherein this unlabeled substrate itself is resting on top of the support [e.g., Fig. 7; 60]. This unlabeled substrate also reads on the instantly claimed "*printed circuit board*" arrangement.

Applicant's arguments with respect to claims 1-9, 11-21, 25-28, 30-33, and 35-37 have been considered but are moot in view of the new ground(s) of rejection.

By such reasoning, rejection of the claims is deemed necessary, proper, and thereby maintained at this time.

### ***Conclusion***

40. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Piziali whose telephone number is (571) 272-7678. The examiner can normally be reached on Monday - Friday (6:30AM - 3PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (571) 272-7681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeff Piziali/  
Primary Examiner, Art Unit 2629  
2 June 2008